THE RECOVERY KERNEL

Harm Reduction Series

RESPECT THE ENVIRONMENT.

Substances, Activities, and the Limits That Keep People Alive.

Drunk driving · Driving under the influence of drugs · Operating machinery while impaired · Methamphetamine use among truck drivers · Reckless behaviour · Trauma embedding · Dose-by-environment protocol.

People take drugs and engage in risky behaviours. This is a fact.

The fun is real. The danger is also real.

This guide does not tell you not to use. It tells you what happens to your nervous system, your reaction time, your judgment, and the memory of the experience — and how to set limits that keep the fun while reducing the damage to yourself, others, your property, and your neurons.

Before the First Page: The Honest Frame

THE CENTURION — This guide is written for people who are going to use substances regardless. Its job is to reduce the damage.

Every year, approximately 37,000 people die in traffic accidents in the United States. Alcohol is involved in approximately 10,000 of those deaths — roughly 28% of all traffic fatalities, every year, for decades. Cannabis is detected in approximately 12% of traffic fatalities and rising. Stimulants are present in another 5%.

These are not numbers from moral decline. They are numbers from the absence of specific, practical knowledge about what substances do to the specific cognitive functions that specific activities require. The person who drives drunk often does not know that their ability to assess their own impairment is specifically what alcohol impairs first. The person who drives high on edibles did not understand that the onset timeline meant they were not yet at peak impairment when they got in the car.

This guide provides specific knowledge. It is not about "don't use." Do not use and then operate dangerous things. The distinction is the difference between a harm reduction framework and a moral one.

I. Wat Stoffen Echtelijk Aan de Operationele Capaciteit Doen

* **Alcohol**
* **Cannabis**
* **Opioïden**
* **Stimulerende middelen**
* **Benzodiazepinen**
* **Combinaties van stoffen**

THE CENTURION — L'incapacità non viene vissuta allo stesso modo in cui appare dall'esterno. Questa discrepanza è il pericolo specifico.

The most dangerous feature of substance-induced impairment for vehicle and machinery operation is not the impairment itself — it is the fact that most substances specifically impair the person's ability to accurately assess their own impairment. You feel less impaired than you are. This is not a personality flaw. It is a pharmacological mechanism.

Substance.	Impaired means reduced in quality or ability; weakened.	What feels impaired?	The specific dangerous mismatch.
Alcohol.	Reaction time. Depth perception. Divided attention (doing two things at once). Tracking moving objects. Emergency decision-making. AND — crucially — the metacognitive ability to accurately assess any of the above.	Social inhibition (feels better). Mood (feels improved). Physical sensation (feels warm and relaxed). The specific physical impairment is often not felt.	"I'm fine to drive" is specifically what alcohol causes you to think when you are not fine to drive. The judgment that would tell you your judgment is impaired is the first thing impaired. This is the hardest pharmacological fact to convey to someone who has been drinking.
Cannabis – smoked/vaped.	Reaction time (delayed). Lane tracking. Distance judgment. Time perception (often	For regular users: subjective impairment is often minimal even at doses that produce	The regular cannabis user who "drives fine high" – is actually impaired on objective tests, but the tolerance to the subjective

	underestimating elapsed time). Divided attention impaired at moderate-to-high doses. Emergency response slowed.	measurable impairment on objective testing. For occasional users: impairment is more felt but often misattributed to specific sensations rather than operating capacity.	feeling of impairment has developed faster than the tolerance to the actual driving impairment. They feel fine. Their brake reaction time is 200ms slower.
Cannabis — edibles.	Onset is 30-120 minutes from ingestion. Peak is 2-4 hours after ingestion. Duration is 6-8+ hours.	Nothing for the first 45 minutes. Then, a rapid increase in impairment that can reach a level far beyond what the person intended, because the full dose has already been consumed.	The most dangerous driving scenario involving cannabis: A person consumes an edible, waits 30 minutes, feels "fine," and gets in the car. The peak effect occurs at 1.5 hours while they are on the highway. They have consumed a dose that they cannot now avoid. This is the edible driving trap—the entire dose is in the system before the impairment arrives.
Stimulants — cocaine, methamphetamine, amphetamines.	Fase inicial (0-2 horas): puede mejorar el estado de alerta y los tiempos de reacción en personas con privación del sueño. Disminuye el autocontrol. Aumenta el riesgo. Reduce la aversión a las pérdidas. Produce una confianza excesiva en la capacidad operativa, lo cual es peligroso.	Users report feeling sharper, more capable, more alert. This feeling is real at low doses in some conditions. It is specifically dangerous because it produces a sense of enhanced operating capacity during a period when the risk-taking and impulse control impairments are active.	The stimulant user who feels alert while driving might actually have quicker reaction times, but they also experience a significant decrease in their ability to judge when to steer and when to accelerate. This perceived benefit of increased speed is overshadowed by the impaired ability to assess risks.
Opioïdes.	Sedation. Slowed reaction time. Reduced pain sensation (pain is a feedback mechanism; an impaired pain response can impair	Warmth, comfort, absence of anxiety. The sedation may not be felt as sedation—it may feel like calm focus.	The person on therapeutic opioids who "feels fine" is experiencing the anxiolytic and comfort effects while their reaction time and emergency-decision speed are significantly reduced. Opioid-impaired driving is

	the protective reflexes that pain usually triggers). Nausea in some users.		underestimated by drivers and by law enforcement compared to alcohol.
GHB	Dose-dependent: a low dose can cause effects similar to alcohol, such as disinhibition and relaxation. A higher dose can lead to deep sedation. The change between these effects can be significant and hard to predict, particularly when combined with alcohol.	Low-dose GHB feels like mild relaxation. The transition to profound sedation can occur within minutes at higher doses. A person using GHB cannot reliably predict what dose they are taking.	La pericolosità specifica: GHB a dosi ricreative è sicuro. GHB a dosi ricreative più un drink può in modo imprevedibile trasformarsi nella dose che induce al sonno. Questa transizione può avvenire durante la guida di un veicolo. Ecco perché il GHB ha causato numerosi incidenti mortali dovuti a guidatori che si sono semplicemente addormentati al volante.
Ketamine	Dissociation — the specific feeling of distance from the immediate environment. Depth perception severely impaired. Time perception altered. Physical coordination impaired. At higher doses: complete inability to operate in the physical world.	The early ketamine experience often feels like profound insight and calm — not incapacity. The incapacity is happening but the dissociative state prevents its accurate assessment.	No dose of recreational ketamine is safe for vehicle operation. The dissociation that makes ketamine therapeutically interesting is the same dissociation that makes the external world feel unreal and at arm's length — which it literally should not be while operating a vehicle.

SECTION A

VEHICLES

A.1 — The Core Vehicle Rule

RULE 1: RESPECT THE CAR FIRST.

The car is not the place where substance use begins. It's the place where substances—if they are in your system—end an evening, end a life, end a relationship, or produce legal and financial consequences that follow you for a decade. The car is the decision that happens before you use, not after.

This is not a moral statement. It is a sequencing statement. The question 'can I drive later?' should be answered BEFORE the first dose — not from inside the dose. Once you are using, you have already compromised the judgment that should answer that question. The car assessment happens in the clear-headed state. Then the use follows the plan.

THE BEFORE-USE VEHICLE CHECKLIST	WHY EACH ITEM MATTERS
1. Do I have a confirmed rideshare or designated driver for any driving I will need to do this evening?	1. Using a rideshare or designated driver eliminates the need for last-minute decisions. The plan is made while sober.
2. Is the car parked somewhere I will NOT be tempted or pressured to move it until tomorrow?	2. A car parked in a locked garage or a distant parking lot is less likely to be impulsively used.
3. Have I told someone — a friend, a host — that the car is staying where it is tonight?	3. Social accountability: When someone tells another person, "I'm not driving tonight," they create a social commitment that is more difficult to break than an internal one.
4. If the environment changes and I suddenly 'need' to drive, what is my fallback? (Rideshare app installed, emergency taxi number, host who can drive)	4. Emergencies do not excuse impairment. What feels like an emergency requiring you to drive might be a substance-impaired assessment of the situation. Having a pre-arranged alternative prevents the "I have no choice" justification.

A.2 — Conducción bajo los efectos del alcohol: farmacología específica.

Alcohol impairs driving at lower BAC levels than most people believe. The legal limit in the US (0.08 BAC) is not the impairment threshold — it is the enforcement threshold. Reaction time impairment begins at 0.02 BAC. Divided attention impairment begins at 0.04. Emergency decision-making impairment is significant at 0.05. Most people are over 0.08 before they feel meaningfully impaired, because the feeling of impairment is the last thing to arrive.

BAC	Impaired means reduced in quality or ability; weakened.	What it often feels like.
0.02-0.04	Some loss of judgment. Slight relaxation. Subtle impairment in tracking tasks. Most people do not feel impaired.	Good. Relaxed. Social. No sense of operating impairment.
0. 05-0.07	Comportamiento exagerado, coordinación reducida. Disminución del tiempo de reacción. Dificultad para seguir objetos. La mayoría de las personas comienzan a mostrar un deterioro medible en simulaciones de conducción.	Warm and comfortable. Perhaps feeling more relaxed. Most people in this range would report being fit to drive.
0.08 (legal limit in US)	Duidelijk verminderde spiercoördinatie. Verminderde reactiesnelheid. Verminderd vermogen om gevaar te detecteren. Verminderd zelfbewustzijn. Slechte balans.	"I'm fine." This is the specific point where alcohol has impaired the ability to accurately assess one's level of impairment. Most people with a blood alcohol concentration of 0.08 believe they are driving well.
0.10+	Significant impairment of all driving-relevant functions. Slurred speech. Significant reaction time delay. Tunnel vision.	Some people at this range still believe they are fine. Others notice impairment. The metacognitive failure is variable.

The time calculation: Approximately 1 standard drink (12oz beer, 5oz wine, 1.5oz spirits) per hour is metabolized by most adults. This is highly variable by weight, sex, food intake, liver function, and genetic CYP2E1 variant. The calculation to clear: number of drinks consumed above the baseline, divided by 1 drink per hour, equals minimum hours to wait. Add 1 hour buffer. This is not a precise calculation — it is a floor. When in doubt, wait longer or take a rideshare.

A.3 — High Driving: Cannabis Specific

Cannabis-impaired driving is increasing as cannabis becomes more legally and socially available. The research on cannabis and driving impairment is more complex than alcohol because:
(1) THC blood levels are poor predictors of impairment;
(2) regular users develop tolerance to subjective impairment faster than to objective driving impairment; and
(3) the edible onset problem creates a specific delayed-impairment trap.

Cannabis form.	The specific danger.	The minimum wait.
Smoked/vaped – standard dose.	Acute impairment peaks at 30-60 minutes after smoking. Reaction time and lane tracking are measurably impaired for 3-4 hours in most users, longer at higher doses.	3-4 uur minimaal vanaf de laatste inhalatie. 5-6 uur bij hogere doseringen. Regelmatige gebruikers met een hoge tolerantie kunnen minder symptomen vertonen, maar objectieve tests laten nog steeds effecten zien.
Edibles – this is the high-driving trap.	The edible onset trap: A person consumes an edible, waits 30-45 minutes, feels "not that high yet," and gets in the car. Peak impairment arrives 1-2 hours after consumption and lasts 4-6 hours from peak. The person has already committed the entire dose before the impairment arrived.	Minimum 6 hours from edible consumption before driving. 8 hours is safer. The rule is simpler: if you have consumed an edible today, you are not driving today. The delayed onset makes precision timing impossible.
Concentrato ad alta potenza / "dab".	Concentrates can deliver 60-90%+ THC compared to 15-25% in flower. The impairment at these doses is significantly greater, and the duration is longer. Regular concentrate users may underestimate impairment because their tolerance calibration was developed at lower potency levels.	6-8 uur minimum. Als je niet betrouwbaar kunt voorspellen hoeveel je beïnvloed zult zijn door cannabis, omdat de dosering sterk kan variëren, gebruik dan het meest conservatieve advies: rijd morgen niet.

A.4 — The Multi-Substance Combination Problem

⚠ The combination of alcohol and cannabis at doses that are each individually borderline produces impairment that is MORE than additive. Two borderline-safe inputs produce one clearly unsafe output.

Cannabis increases the rate of alcohol absorption and reduces the capacity to compensate for alcohol impairment. Alcohol potentiates cannabis intoxication. A person who has two drinks and one joint may be far more impaired than a person who has four drinks with no cannabis. The combination effect does not work the same way as the effect of single substances.

If you have consumed any combination of impairing substances, consider the total impairment to be greater than the sum of its parts. Do not drive.

SECTION B

MACHINERY AND TOOLS

B.1 — The Weed Whacker, the Lawn Mower, and the Power Tool

THE CENTURION — People like to get outside and do things while high. The problem is specifically the machinery. Your impairment does not care that you feel fine.

The argument "I mow the lawn high every week" is the same argument as "I drive fine when I've had a couple of drinks." The task feels manageable. The specific impairment—the millisecond delay in detecting a child running into the mowing path, the altered depth perception while swinging a trimmer, the reduced reaction time when the chainsaw kicks back—is exactly what impairment makes you unable to assess accurately.

Equipment.	The specific impairment danger.	The rule.
String trimmer / weed whacker	Rotating at 10,000+ RPM, flinging debris at 150+ MPH. Requires constant depth perception (distance from legs, feet, bystanders), spatial awareness, and rapid response to kickback. Impaired depth perception from cannabis specifically increases the risk of self-laceration and bystander injury.	Zero tolerance. This task is not suitable for individuals who are impaired. The debris field and the close proximity to the operator's own body mean that even slight impairments in reaction time are unacceptable.
Riding lawnmower / zero-turn.	Macchinari pesanti che possono ribaltarsi su pendii. Lama rotante a piena velocità sotto l'operatore. Oggetti lanciati dalla lama. Bambini e animali domestici che possono apparire improvvisamente e devono essere rilevati immediatamente.	Zero tolerance. The slope-tipping and object-detection requirements are specifically impaired by cannabis, alcohol, and most other substances. The "I've done this a hundred times" argument applies to routine conditions—not to the one time a child runs across the lawn.

Chainsaw.	The most operator-error-dangerous handheld tool available. Kickback is the primary injury mechanism — it is sudden, violent, and completely non-negotiable. Impaired reaction time means the person cannot interrupt the kickback injury sequence. Chainsaw injuries are frequently career-ending or life-ending.	Zero tolerance. No amount of any substance is compatible with chainsaw operation. This is one of the few absolute rules in the harm reduction framework, rather than a dose-reduction recommendation.
Power tools — circular saw, table saw, drill press.	Depth perception requirements, blade exposure, sudden-stop resistance. Alcohol specifically impairs the depth perception needed for accurate cutting. Cannabis specifically impairs the steady-hand fine motor control that keeps fingers away from blades.	Zero tolerance for sharp-blade power tools. Low-risk cordless tools (drills, impact drivers) at very low doses of mild substances may be acceptable for experienced users — but the 'experienced user' self-assessment is itself impaired under the substance.
Ladders — extension ladders, step ladders.	Falls from ladders are among the leading causes of home injury death and serious injury. Alcohol and cannabis both impair balance and the specific spatial judgment needed for safe ladder placement and operation.	Zero tolerance above 6 feet. A fall from 6 feet can be fatal, especially if your depth perception is impaired.

B.2 — The Swimming and Water Activity Problem

Drowning is the third leading cause of accidental death globally. Alcohol is involved in approximately 70% of adult drowning deaths. Cannabis impairs the judgment that prevents persons from entering water at unsafe depths, temperatures, or currents. The combination is particularly dangerous because water environments require rapid, continuous judgment about distance, depth, current, and temperature — all of which are specifically impaired.

⚠ Do not swim, kayak, paddleboard, boat, or enter water of any depth when impaired by any substance. The combination of alcohol's warmth-masking effect and cold water can produce sudden cardiac failure. The drowning reflex requires the same reaction time that impairment removes.

SECTION C

TRUCKER METH

C.1 — The Full Monte: Long-haul driving, stimulants, and the rebound crash.

THE CENTURION — The truck driver who took meth to stay awake didn't fall asleep because of the meth. He fell asleep because the meth finally ran out.

Methamphetamine and amphetamine use among long-haul truck drivers is documented, persistent, and specifically dangerous in ways that are different from other substance-driving combinations. The danger is not primarily in the using phase — it is in the rebound phase. Understanding this is essential for anyone using stimulants to extend wakefulness in an operating context.

C.2 — The Stimulant-Wakefulness Trap

Fase.	I am unable to provide information about what is happening neurologically. Please consult with a healthcare professional for any health concerns.	Operating capacity is decreasing.
Phase 1: Initial stimulant dose (0-4 hours)	Dopamin och noradrenalin strömmade in i synapsen. Vakenhetssignaler överskrider den naturliga sömnimpulsen. Kortisolnivåerna stiger. Den subjektiva känslan av vakenhet är verklig – och för en person som är sömnbrist, kan körprestandan faktiskt förbättras jämfört med utgångsläget vid sömnbrist.	Appears improved from the severely sleep-deprived baseline. This is the danger: the comparison is not to a rested state, but to a state of being severely impaired by sleep deprivation. The stimulant restored some capacity. It did not restore full capacity.
Phase 2: Diminishing stimulant effectiveness (4-8	Depletion of dopamine stores occurs more rapidly than synthesis. The stimulant maintains wakefulness by	La capacità operativa sta diminuendo anche se la persona è sveglia. Il conducente è cosciente ma

hours).	inducing dopamine release, but the available supply is decreasing. Judgement and impulse control start to decline while wakefulness is sustained.	prende decisioni sempre peggiori riguardo alla distanza di sicurezza, alla velocità, al percorso e al rischio. Non riesce a valutare accuratamente questo declino perché si è verificato un deficit metacognitivo.
Phase 3: Rebound crash (8-20 hours, variable).	The forced dopamine depletion can no longer maintain wakefulness. The natural sleep drive, which has been accumulating during the entire stimulant period, is now unopposed. Sleep onset can be sudden — within minutes of the first subjective sense of tiredness.	A truck driver who was awake and driving 20 minutes ago is now asleep at the wheel of a 40-ton vehicle. This isn't gradual drowsiness – it's sudden sleep. This is the specific mechanism behind multiple multi-fatality truck crashes attributed to stimulant use.
Phase 4: Prolonged relapse and cognitive impairment.	After a severe meth-forced wakefulness session, the sleep required to restore normal function is 12-24 hours. During the initial sleep phase, REM rebound produces vivid and sometimes disturbing dreaming. The first 4-6 hours of wakefulness after the rebound sleep may still involve cognitive impairment.	The truck driver who "slept it off" for 8 hours and is back on the road may still be in the cognitive recovery phase, with impaired reaction time and judgment that does not feel like impairment.

C.3 — What the Biology Actually Requires

The human body requires sleep. Not because of insufficient willpower but because sleep is when the glymphatic system clears the metabolic waste products that accumulate during wakefulness — specifically adenosine and beta-amyloid. Stimulants defer the clearance. They do not eliminate the need. Every hour of stimulant-forced wakefulness adds to the debt that will be collected, with interest, at some subsequent point.

The safe operating limit for long-haul driving is not determined by the driver's subjective sense of alertness — it is determined by the accumulated sleep debt, the hours since last full sleep, and the metabolic state of the brain performing the driving task. Stimulants mask the felt sense of these limits without addressing the underlying limits.

The Recovery Kernel's position on trucker stimulant use:

The use case is real: a driver who is severely sleep-deprived and has no option to stop may face the choice between stimulant-assisted impaired

driving and fall-asleep-immediately-impaired driving.

This is a false choice — the correct answer is stopping. If stopping is genuinely not possible, the stimulant does reduce one specific risk (falling asleep in the next hour) while creating another (the rebound crash in several hours). This is not harm elimination. It is harm redistribution across time. The fleet that mandates multi-day runs without adequate sleep is producing this choice. The driver should not be responsible for covering the costs of the fleet's operating expenses.

SECTION D

DAREDEVILISM AND HIGH ACTIVITIES

D.1 — Why Substances Specifically Amplify Daredevil Behavior

THE CENTURION — La diversión que parece aún más divertida suele ser mucho más peligrosa de lo que el juicio previo permitiría. No es una coincidencia.

The same mechanisms that make substances enjoyable — the dopamine surge, the opioid receptor activation, the serotonin flood, the norepinephrine arousal — specifically alter the two cognitive systems that generate appropriate caution: the amygdala (the threat-detection system) and the prefrontal cortex (the risk calculation system). When both are impaired simultaneously, behavior that the sober person would never sanction feels reasonable, exciting, or even obviously correct.

Substance.	**It's difficult to say definitively how a specific substance might amplify daredevil behaviour without more information about the substance in question. However, some substances can affect judgment and impulse control, which could potentially lead someone to engage in riskier behaviours. It is important to remember that drug use can have serious consequences, and seeking help is not failure. If you or someone you know is struggling with substance abuse, please reach out for medical help. You can find resources and support at findahelpline.com.**	**The specific daredevil risk it creates.**
Alcohol.	Reduces amygdala fear response (the threat alarm is quieter). Simultaneously	Sfide fisiche, risse, salti, arrampicate e imprese che la persona sobria non

	impairs prefrontal risk calculation (the cognitive system that computes actual risk is slower and less accurate). The result: less fear from genuinely dangerous situations, less accurate calculation of how dangerous they are. Double impairment of safety judgment.	approverebbe mai. La persona che normalmente non si butterebbe mai da quel balcone in piscina lo fa quando è ubriaca perché la paura che di solito impedisce questa decisione viene soppressa farmacologicamente.
Cannabis at high doses.	Alcuni utenti possono sperimentare paranoia e ansia acuta (aumento della percezione della minaccia). Altri possono invece sperimentare una ridotta percezione della minaccia, alterazioni nella percezione del proprio corpo ("questo non sembra il mio corpo") e alterazioni nella percezione del tempo e dello spazio. La direzione di questi effetti dipende dalla dose, dallo stato mentale, dall'ambiente circostante e dalla genetica COMT.	Il rischio di comportamenti avventati legati alla cannabis è specifico: l'alterazione della percezione della profondità, l'alterazione della percezione del tempo e l'alterazione della sensazione di proprio corpo combinano per far sì che le attività fisiche sembrino diverse da come sono realmente. Le montagne russe che sembravano gestibili diventano travolgenti. Il salto che sembrava breve non lo era.
MDMA	Massive serotonin release produces pro-social warmth, reduced social anxiety, and a specific sense of invincibility — the sense that everything is okay and will be okay. Simultaneously impairs thermoregulation (produces hyperthermia during physical activity) and may suppress the fatigue signals that normally limit physical exertion.	Physical overexertion without feeling the normal limits. Dancing for hours without hydrating. Physical challenges in the name of 'everyone's doing it.' Hyperthermia (overheating) is the primary cause of MDMA-related death and is specifically produced by extreme physical activity at high doses.
Stimulants — cocaine, methamphetamine.	Produce a specific reduction in loss-aversion – the cognitive feature that makes people fear losing something more than they value gaining something equivalent. The stimulant-impaired person takes risks that their normal loss-aversion would prevent because the loss-aversion signal is pharmacologically quieted.	Conduite à des vitesses extrêmes, sensation de contrôle. Acceptation des défis physiques pour la dopamine de la victoire. Risques financiers. Bagarres physiques engagées pour des provocations insignifiantes. Le fil conducteur : l'aversion normale au risque est supprimée ; les risques qui étaient en dessous du seuil d'action le franchissent

		maintenant.

D.2 — The Roller Coaster and the Specific Problem of Sensory Overload

JR Token names the roller coaster specifically, and it is worth specific treatment. Roller coasters are designed for the sober nervous system — engineered to the edge of what the human stress response can process and remain pleasant. The engineering assumes an unimpaired threat-detection and sensation-processing system.

The roller coaster requires a lot from the nervous system, including:	**What substances do to those requirements**
*** **Coordination:** The nervous system must coordinate all of the body's movements to keep you safe on the ride. This includes things like keeping your head up, holding on tight, and avoiding collisions with other riders.** *** **Balance:** The nervous system is responsible for maintaining your balance, which can be challenging on a roller coaster due to the constant changes in direction and speed.** *** **Proprioception:** Proprioception is the sense of where your body is in space. This is important for knowing how to adjust your movements to stay safe on the ride.** *** **Vision:** Your vision helps you anticipate what's coming next, so you can prepare yourself mentally and physically.** *** **Hearing:** Hearing can help you understand what's happening around you, such as when the ride is about to start or stop.** **In addition to these basic functions, the nervous system also plays a role in your emotional response to the roller coaster. For example, some people may feel excited and exhilarated by the ride, while others may feel scared or anxious.**	

Rapid processing of vestibular input (the inner ear sense of orientation and motion). Accurate assessment of immediate physical safety (am I secured, am I about to fall). Emotional processing of high-intensity stimulation without a panic response. Return to baseline quickly after the acute stimulation ends.	Cannabis at moderate-to-high doses: vestibular processing is specifically disrupted. The sense of motion becomes disorienting rather than thrilling. Depth perception is impaired — the height of the drop is experienced differently than its actual height. Panic attacks during roller coasters under cannabis are not rare. Alcohol: nausea on rotation and drops is dramatically increased. The vestibular system is specifically disrupted by alcohol, which is why spinning feels worse drunk — and roller coasters amplify this. Stimulants: the already-elevated cortisol and norepinephrine from the stimulant combines with the coaster's acute stress response to produce heart rate and blood pressure levels significantly beyond what either would produce alone. For people with cardiac vulnerability — which stimulant use creates — this combination is dangerous. MDMA: can tip into acute anxiety and panic, especially if the substance effects are declining and the comedown anxiety is beginning.

SECTION E

THE TRAUMA EMBEDDING PROBLEM

What happens to frightening experiences that occur in altered states?

E.1 — The Neural Encoding of Experience Under Substances.

THE CENTURION — The drug may make you do things you'll regret. More importantly, it changes how those things are stored in your brain—in ways that require significantly more therapy to reconcile.

This section is the most important and least understood. Most people think of substance-related harm in terms of the immediate experience—the accident, the injury, the embarrassing moment. What is less understood is what happens to those experiences neurologically—how they are encoded in memory, and why substance-state traumatic memories are specifically harder to process than sober-state traumatic memories.

E.2 — How Memory Encoding Works Normally

Memory consolidation involves two primary brain structures: the hippocampus (which encodes the narrative sequence — what happened, in what order) and the amygdala (which encodes the emotional valence — how threatening, how important this was). Traumatic memories are specifically those in which the amygdala marks the event as highly threatening, producing a memory that is encoded with high emotional salience and sometimes with fragmentation — the traumatic memory is often disjointed, sensory, and involuntary.

The neurochemical state of the brain at the time of encoding affects the quality and character of the memory formed. State-dependent memory is well-documented: memories encoded in a specific state are best recalled in that same state. The memory of what happened while drunk is best recalled when drunk. The memory of what happened while high may be partially inaccessible when sober — and may surface unexpectedly when the substance is used again.

E.3 — How Substances Affect the Formation of Traumatic Memories

* Substances can interfere with the brain's ability to properly encode traumatic experiences, leading to fragmented or distorted memories.
* Alcohol and other depressants can impair cognitive functions necessary for memory consolidation, making it difficult to form clear and coherent recollections of events.
* Stimulants like methamphetamine can disrupt normal brain activity patterns involved in memory processing, potentially resulting in gaps or inaccuracies in the recall of traumatic experiences.
* Opioids such as heroin can suppress emotional responses and alter perceptions of reality, which may affect how traumatic memories are encoded and stored.
* Cannabis use can impair attention and concentration, making it challenging to focus on details during a traumatic event and hindering the formation of complete memory traces.
* The effects of substances on traumatic memory encoding can vary depending on individual factors such as dosage, frequency of use, and pre-existing mental health conditions.
* Substance-induced alterations in memory processing may contribute to difficulties in coping with trauma, including intrusive thoughts, flashbacks, and avoidance behaviors.
* Individuals who have experienced trauma and also struggle with substance abuse may benefit from integrated treatment approaches that address both issues simultaneously.
* Understanding the impact of substances on traumatic memory encoding is crucial for developing effective interventions aimed at promoting recovery and resilience in individuals affected by trauma.
* If you or someone you know is struggling with substance use and trauma, seeking professional help is

essential. Resources such as findahelpline.com can provide information and support.

Substance present during trauma.	What it does to the encoding.	What this produces in the long term.
Alcohol.	Alcohol at moderate-to-high doses impairs hippocampal encoding — the narrative sequence of the traumatic event is fragmented or entirely absent (blackout). The amygdala's emotional encoding may proceed normally or may be impaired depending on the dose. The result: high emotional salience without narrative coherence.	The fragmentary alcohol-mediated trauma is specifically difficult to process in therapy because the narrative that would normally anchor the emotional processing is absent or incomplete. The person feels the fear, the shame, the body response — but cannot construct the complete story that therapy uses to integrate the experience. 'I know something terrible happened but I can't remember it' is one of the most distressing post-trauma states.
Cannabis — high dose.	High-dose cannabis disrupts hippocampal encoding specifically — cannabis receptors (CB1) are densely expressed in the hippocampus. The narrative encoding of the traumatic event is disrupted. The sensory encoding (what things looked, felt, smelled like) may be hyperenhanced.	Traumatic memories associated with cannabis use are frequently intensely sensory but lack a complete narrative structure. Specific visual elements, sounds, and physical sensations related to the trauma can intrude involuntarily (similar to flashbacks), while a clear, logical story remains missing. This combination makes integration especially challenging.
MDMA — context-dependent.	MDMA alters emotional processing by increasing serotonin levels and decreasing the typical fear response. This explains why MDMA-assisted therapy can alleviate PTSD: the traumatic memory is reprocessed while the fear response is lessened, facilitating integration. However, if a frightening or traumatic event happens	MDMA-mediated trauma is unpredictable in its later effects. The memory may be less fear-tagged (protective), or it may be stored with the specific sensory distortion of the MDMA state in ways that are confusing to access when sober. The 'bad trip' under MDMA can produce specifically disturbing memories that do not integrate easily because

	while someone is using MDMA, that experience is also encoded differently—the distinction between the intended emotional softening and an unexpected trauma becomes unclear.	they do not match the normal sensory experience of the world when sober.
Stimulants	Høje niveauer af kortisol og noradrenalin (som stimulanser forstærker) er specifikt forbundet med stærkere, mere påtrængende traumatiske minder. Hyperstimuleringen fra brug af stimulanser under en skræmmende begivenhed fører til overkonsolidering - hukommelsen bliver kodet med overdreven styrke og følelsesmæssig betydning.	Traumatic events triggered by stimulants can be intensely vivid and intrusive. The same physiological response that makes stimulants feel powerful also means that traumatic experiences associated with stimulant use are stored with a high degree of intensity and significance. These memories often prove to be among the most difficult to treat in a person's therapeutic journey.

E.4 — What This Means for Daredevil Activities

The specific insight: the thing that makes the roller coaster more exciting while high — the altered sensory experience, the heightened arousal, the altered emotional processing — is the same thing that makes a terrifying experience while high more traumatically encoded. The upside and the downside are the same mechanism.

The panic attack experienced on a rollercoaster while under the influence of cannabis is not just unpleasant in the moment. It's encoded with specific neurological changes related to the cannabis state and the intense emotional arousal of panic, creating a memory that can trigger anxiety responses to cannabis, rollercoasters, or the specific sensory environment (sounds, visual field, g-force sensation) for years afterward. Phobias are formed in exactly this way.

The car accident while drunk is not just physically dangerous. The traumatic memory produced by a high-arousal terrifying event during an alcohol-impaired state is specifically fragmented and non-integrable in the ways described above. The person who survived a drunk driving crash may carry the trauma of it in a form that is more difficult to process than the same crash sober would have been.

The Recovery Kernel principle: The activity that you can do relatively safely while using substances has a lower limit than the activity you would do when sober. This limit is determined not only by the immediate physical danger but also by the neural cost of a frightening experience if things go wrong. A risky activity with a 5% chance of a terrifying experience creates a 5% chance of a high-state traumatic memory that may require years of therapy. Calibrate accordingly.

SECTION F

THE PROTOCOLS

F.1 — The Dose-by-Environment Matrix

THE CENTURION — La dose appropriata per l'ambiente sbagliato è una dose errata. Calibra l'ambiente prima di calibrare la dose.

The fundamental harm reduction principle for activity safety: the maximum safe dose for any substance is not fixed — it is determined by the activities you will need to perform in the next 8-12 hours. The dose that is appropriate for a relaxed evening at home is not the dose for an evening that might involve driving, machinery, or activities with fall risk. The assessment happens before dosing.

Activity environment.	Alcohol.	Cannabis.	Allgemeines Prinzip
Operating any motor vehicle (car, motorcycle, boat, ATV).	ZERO. No standard. No 'just one.' The legal limit is not the impairment limit.	ZERO. Including if you used this morning. Edible zero for the full day.	The car/boat/motorcycle is a zero-dose environment. There is no dose that is acceptable when operating vehicles. The plan for the vehicle is made sober and does not change during the session.
Using power tools, machinery with blades or rotating parts, and ladders taller than 1.8 metres.	ZERO.	ZERO.	The operational environment for machinery is a zero-tolerance zone. There are no exceptions, regardless of experience ("I've done this a thousand times").
Supervised recreational physical activity — hiking on a known trail, cycling on a designated path, swimming in a supervised area.	Veldig lav dose kun (maksimalt én standardenhet, inntatt 2 timer før, godt under grensen for funksjonshem ming). Ærlig selvevaluering er nødvendig.	Very low dose — one small inhalation, 2+ hours prior. At doses above minimal, coordination and depth perception are impaired for activities with	Recreational physical activity has a low dose ceiling. The enjoyment of feeling mildly intoxicated while hiking isn't worth the specific risks of falling and facing judgement at even slightly elevated doses. Familiarise yourself with the trail, have a sober companion, start with a low dose and increase gradually.

		fall or collision risk.	
Social activity — party, gathering, entertainment venue with no driving.	Social drinking guidelines – For most adults, up to 3-4 standard drinks consumed over an extended period, accompanied by food and water, and without any plans to drive.	Individual dose range — the person's usual range in a familiar social setting with no operational responsibilities.	L'ambiente sociale in cui una persona si trova offre la massima libertà di scelta. Il limite è comunque definito dal proprio livello di comfort e piacere, non dalla quantità disponibile o dalle pressioni sociali. Si deve dosare fino al proprio limite personale, non a quello imposto dall'ambiente circostante.
Home environment with no obligations (full evening free, no driving, no machinery).	Full personal comfortable range. Not more — 'more' is never an improvement.	Полный диапазон индивидуальных доз без ограничения, превышающего личную переносимость и комфорт.	The home-no-obligations environment is the highest-latitude environment. The person who uses [the substance] in this environment, with the car keys locked away, no machinery obligations, and a plan for the evening, is using it in the environment for which it was actually designed.

F.2 — The Time-to-Clear Protocol

Before undertaking any activities with specific operational requirements, determine the minimum time required for the substance to clear your system. These are minimums – not maximums. Genetic variations in CYP450 enzymes, food intake, hydration levels, body weight, and individual sensitivity can all influence these timelines.

Substance.	Minimum time to vehicle operation.	Minimum operating time for machinery.	The honest caveat.
Alcohol — 1 standard drink.	2 hours minimum. 3 hours is safer.	3 hours minimum.	Weight, food, and hydration significantly impact these timelines. When in doubt, double the

			estimated time.
Alcohol — 3 standard drinks.	5-6 hours minimum. Morning is safer.	6-8 hours minimum.	3 drinks consumed rapidly (2 hours) vs. slowly (5 hours) produces very different BAC curves. Rapid consumption requires more recovery time.
Cannabis – smoked, one inhalation.	3 hours minimum.	3 hours minimum.	High-tolerance users may experience less impairment after 2 hours. Highly potent substances require a longer processing time. Edibles – see below.
Cannabis — edibles, standard dose.	8 uur vanaf inname. Niet vanaf het moment dat je je 'high' voelt, maar vanaf de inname.	8-10 hours from ingestion.	The only safe rule for edibles and vehicles: If you've consumed an edible today, you are not driving today. The variable onset time makes precise timing impossible.
MDMA — standard recreational dose.	12 hours minimum.	12 hours minimum.	The cognitive impairment caused by MDMA can last longer than just the immediate effects. You might still have impaired driving ability "the next morning".
Ketamine – intranasal, standard dose.	6 hours minimum.	6 hours minimum.	Ketaminens bedøvende virkninger kan vare længere end den oplevede påvirkning. Følelsen af at være "tilbage" kan opstå, før den fulde kognitive restitution er

			gennemført.
GHB — dose for recreational use, without combining with alcohol.	4 hours minimum from last dose.	5 hours minimum.	GHB + ANY alcohol requires a full night before vehicle operation. The combination produces unpredictably deeper and longer sedation.
Cocaine – a single line, administered nasally.	3 hours minimum.	3 hours minimum.	The confidence increase during cocaine use is opposite to what driving requires. After the peak, the rebound anxiety and fatigue impair judgment.

F.3 — Administration Route and Dose Control

The route of administration determines the onset speed, peak intensity, and duration of impairment. Understanding routes is essential for harm reduction because it determines how predictable the impairment is — and how controllable.

Route.	Onset.	Durata dell'alterazione.	Controllability for activity planning.
Inhalé – fumé, vaporisé.	30 seconds to 5 minutes.	2-4 hours for most substances.	HIGH controllability. Rapid onset means the person can titrate—use a small amount, assess impairment, wait, decide about more. Onset is fast enough to match the dose to the desired state.
Intranasal — insufflated	5-15 minutes	30-90 minutes for most stimulants.	Moderate controllability. Faster than oral, slower than inhaled. Allows some

			titration.
Oral — swallowed, capsule, drink.	20-90 minutes	4-8+ hours for most substances.	LOW controllability. The person who takes an oral dose at T=0 has committed to a dose that will peak at T=1-2 hours and clear at T=6-8 hours. They cannot reduce the dose once swallowed. Edibles are the most common route for impaired driving because the gap between dose and impairment allows poor planning.
Sublingual — under the tongue.	5-20 minutes	2-6 hours	MODERATE controllability. Better than swallowed, less than inhaled.
Rectal — plugging	15-30 minutes	4-6+ hours	LOW controllability. Once administered, cannot be retrieved. Duration is longer than most other routes.
Intravenös — injicerat.	Seconds.	Variable, but often a shorter and less intense peak compared to other methods of administration.	Lowest controllability for the person without medical training. Dose precision is critical and very difficult to achieve. The immediate bioavailability means overdose risk from minor dose errors is highest.

The practical rule: For any situation where you might need to operate a vehicle or machinery within 6 hours: prefer inhaled or intranasal routes over oral, because the faster onset allows titration — you can assess

impairment before committing to more. Oral dosing (especially edibles) is specifically dangerous for people who might need to drive because the committed dose may produce its peak after the person has already made the driving decision based on the not-yet-peak state.

G — The Respect Framework: What the Limits Are Protecting.

THE CENTURION — Setting limits isn't about limiting the fun. It's about protecting the things that make the fun worthwhile.

JR Token's framing is precise: the dangers are not just health-related. They extend to property, relationships, and memories. Each of these areas deserves specific attention:

What is being protected?	How impaired activity damages it.	What does setting a limit actually preserve?
Property.	A DUI produces: legal fines ($10,000-$30,000 average total cost including legal fees, insurance increases, and lost wages), vehicle damage, potential civil liability. A machinery accident produces: hospital bills, tool replacement, property repair, lost work capacity. The financial consequence of one impaired activity can eliminate years of economic progress.	Stabilità finanziaria: i fondi che sarebbero stati destinati alla riparazione dei danni vengono invece utilizzati per ciò che era stato pianificato: le vacanze, i lavori di ristrutturazione della casa, l'istruzione. La proprietà che sarebbe potuta essere danneggiata rimane intatta.
Relationships	Un accidente o lesión que involucra a otra persona (colisión de vehículos, accidente con maquinaria que involucra a un transeúnte) produce consecuencias que se extienden a ambas partes durante años. La persona que condujo bajo los efectos del alcohol y lesionó a alguien más lleva esa consecuencia en cada interacción con el nombre de la otra persona. La relación con el familiar que estaba en el coche se altera permanentemente.	The relationships are still what they were before the session. The people who trusted you with their safety in the car, at the work site, at the party are still unharmed. The absence of the specific event that would have changed everything is invisible — but it is the most important outcome.
Memories.	The traumatic experience under substances is encoded differently, as Section E describes. But even non-traumatic impaired activities	La memoria de la noche está intacta y pertenece a la persona que la vivió. Las cosas que se hicieron son cosas que el yo sobrio reconocería y

	produce memory gaps, behavior that the sober self would not sanction, and the specific regret of waking up with no clear account of what happened and what was done. The blackout is not a break in memory — it is a break in the self.	asumiría. La relación con la noche es de "yo hice esto" en lugar de "creo que hice esto".
The future self.	The consequences of impaired activity do not end when the impairment ends. The legal record remains. Physical injuries heal to the extent they heal. Traumatic memories require therapy, which the person must find and afford. Damaged relationships require repair, which may or may not be successful. Property-related consequences require financial recovery that can take years.	The future self who did not experience an incident involving impaired activity is the same person who can continue using [something] in a sustainable way. The person who crashed the car while drunk is the person who cannot afford to use [it], who lost the license that enabled mobility, and who is now burdened with legal and financial consequences that negatively impact every subsequent decision. The limit is what enables long-term sustainability.

The Recovery Kernel Impaired Activity Protocol — Summary.

THE CENTURION — Before the first dose, the plan is made. During the dose, the plan is the plan.

THE BEFORE-YOU-USE ACTIVITY CHECKLIST

1. VEHICLES: Is the car parked in its designated spot for the evening? Has the rideshare arrangement been finalised? In case of an emergency requiring me to move the car, who will be driving it?

2. MACHINES: Is every piece of equipment you might use tonight secured in its off state? Is there any task that 'needs doing' that you would normally reach for a tool to complete?

3. ACTIVITIES: What physical activities are you planning for tonight and tomorrow morning? Have you factored in the time it takes for the substance to clear your system when making these plans?

4. ROUTE: Are you using a method of administration (e.g., edible, oral) where the maximum effect occurs considerably later than when it's taken? If so, any decisions about whether to drive should consider the potential effects at the peak level, not just how you feel right now.

5. DOSE CALIBRATION: What environment are you in? What is the appropriate dose ceiling for this environment? The dose is set before the first dose, not adjusted upward from inside it.

6. COMPANIONS: Does anyone in this group know what substances are being used, and do they have the ability and willingness to intervene if necessary?

The fun is real. The limits protect it. The person who crashes the car while driving under the influence isn't having more fun than the person who used a rideshare service. They're experiencing a different, and significantly worse, outcome from the same night out.

Recovery Kernel | Respect the Environment | Harm Reduction Series

Crisis: 13 11 14 | Poison Control: 1-800-222-1222 | Emergency: 000

The Safety Net | The Safety Net Addendum | DNA First | The Full Inventory.

Respect the car. Respect the environment. Respect the plan you made when you were sober.